

**isc Silicon NPN Power Transistor**
**BDY56**
**DESCRIPTION**

- Excellent Safe Operating Area
- DC Current Gain-  
:  $h_{FE}=20-70@I_c = 4A$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 1.1 V(\text{Max})@ I_c = 4A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

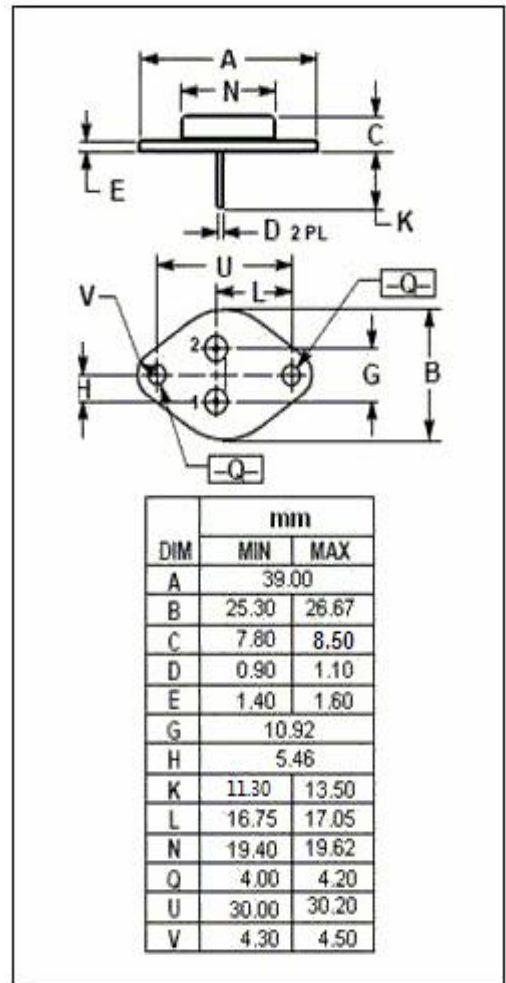
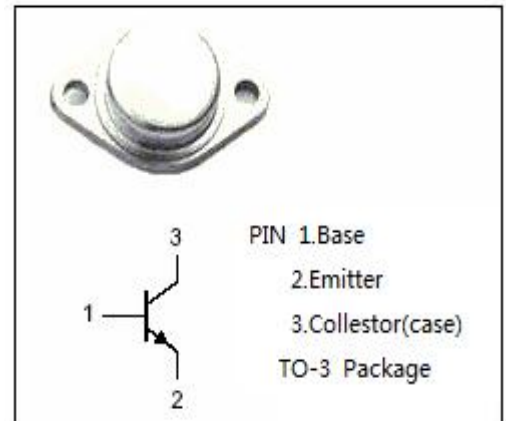
- Designed for general-purpose switching and amplifier applications

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	150	V
$V_{CEO}$	Collector-Emitter Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_c$	Collector Current-Continuous	15	A
$I_B$	Base Current	7	A
$P_c$	Collector Power Dissipation@ $T_c=25^\circ\text{C}$	117	W
$T_J$	Junction Temperature	200	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~200	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.5	$^\circ\text{C}/\text{W}$



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**ELECTRICAL CHARACTERISTICS**

 T<sub>C</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V <sub>CEQ(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> =30mA; I <sub>B</sub> = 0	120		V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 0.4A		1.1	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 3.3A		2.5	V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 4A; V <sub>CE</sub> = 4V		1.8	V
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 60V; I <sub>B</sub> = 0		0.5	mA
I <sub>CEx</sub>	Collector Cutoff Current	V <sub>CE</sub> = 150V; V <sub>BE</sub> =-1.5V V <sub>CE</sub> = 150V; V <sub>BE</sub> =-1.5V, T <sub>C</sub> =150°C		3.0 30	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 7V; I <sub>C</sub> = 0		3.0	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 4A; V <sub>CE</sub> = 4V	20	70	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 10A; V <sub>CE</sub> = 4V	10		
f <sub>T</sub>	Current Gain-Bandwidth Product	I <sub>C</sub> = 1A; V <sub>CE</sub> = 4V; f=10MHz	10		MHz
Switching Times					
t <sub>on</sub>	Turn-On Time	I <sub>C</sub> = 5A; I <sub>B</sub> = 1A		0.5	μs
t <sub>off</sub>	Turn-Off Time	I <sub>C</sub> = 5A; I <sub>B1</sub> = 1A; I <sub>B2</sub> = -0.5A		2.0	μs

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